

Designation/ reaction	DNA Seq No. (length, nucs)	Protein Seq No.	Seq length (amino acids)	Enzyme activity/ activities	Substrate	Product (formula)	Enzyme class/type	Gene reference No. (code name)
A	1 (2586)	2	861	cobyrinic acid a,c diamide synthase (EC 6.6.3.-)	Cobyrinic acid (I)	Cobyrinic a,c diamide (IB) (with intermediate cobyrinic acid c-amide, IA)	(amide) synthase	PFR 111925 (cobA/cbiA)
B (B1, B2)	3 (657)	4	218	cobinamide kinase (EC 2.7.1.-)	Adenosyl cobinamide (II)	Adenosyl cobinamide phosphate (IIA)	(phospho) transferase	PFR 111926 (cobU)
				cobinamide phosphate guanyl transferase (EC 2.7.7.-)	Adenosyl cobinamide phosphate (IIA)	Adenosyl-GDP- cobamide (IIB)	(nucleotidyl) transferase	
C	5 (780)	6	256	cobalamin (5'- phosphate) synthase (EC 2.7.8.-)	Adenosyl- GDP- cobamide (IIB)	Adenosyl-5,6- dimethyl benzimidazolyl cobamide, (adenosyl cobalamin i.e. vitamin B <sub>12</sub> (IIC)	(aryl) transferase	PFR 111927 (cobS)
D	7 (603)	8	200	(cob(I)alamin) adenosyl transferase (EC 2.5.1.17)	Cobyrinic acid a, c diamide (IB)	Adenosyl cobyrinic acid a, c diamide(IC)	(nucleotidyl) transferase	PFR 111924